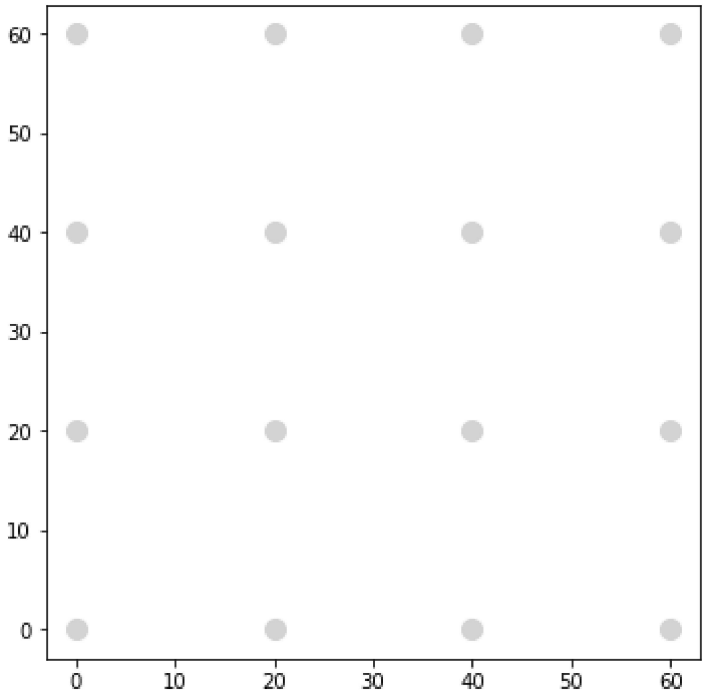
A2-Q4: Unlock Code

In [1]:
```
import numpy as np
from scipy.interpolate import make_interp_spline
import matplotlib.pyplot as plt
```

In [2]:
```
# Display grid of 16 circles
def DrawGrid():
    plt.figure(figsize=(6,6))
    [gx, gy] = np.meshgrid([0, 20, 40, 60], [0, 20, 40, 60])
    plt.plot(gx, gy,'o', color='lightgray', markersize=10); plt.axis('square');
```

In [3]:
```
DrawGrid()
```



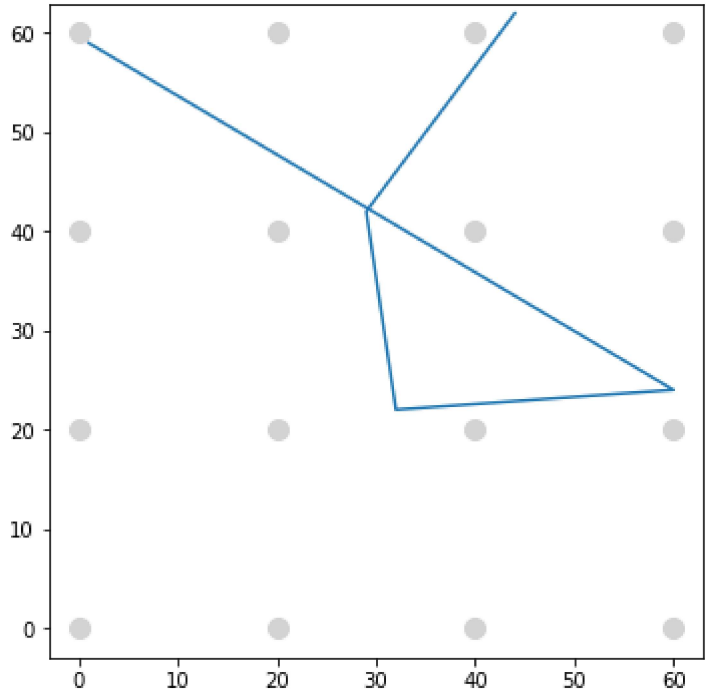
(a) Fit Points with a Spline

In [4]:
```
t = [0, 0.878, 1.424, 1.969, 2.737]
x = [1, 60, 32, 29, 44]
y = [59, 24, 22, 42, 62]

x_cs = make_interp_spline(t, x, bc_type=([(2, 0.0)], [(2, 0.0)]))
y_cs = make_interp_spline(t, y, bc_type=([(2, 0.0)], [(2, 0.0)]))
```

(b) Plot the Spline

In [5]:
```
plt.figure(figsize=(6,6))
[gx, gy] = np.meshgrid([0, 20, 40, 60], [0, 20, 40, 60])
plt.plot(gx, gy,'o', color='lightgray', markersize=10); plt.axis('square');

plt.plot(x,y)
```

Out[5]: [<matplotlib.lines.Line2D at 0x1719ab67700>]



(c) Unlock Pattern

(0, 60), (60, 20), (40, 20), (20, 40), (40, 60)